Listing of the Claims

1. (Original)   A method for detecting the presence of a signal on one of at least two frequency channels in a frequency translating repeater for use in wireless local area network (WLAN) operating according to a protocol, the method comprising:

establishing a first threshold associated with a first of the at least two frequency channels and a second threshold associated with a second of the at least two frequency channels;

monitoring the first and second frequency channels to detect the signal thereon in accordance with a first detection mode including the first threshold and the second threshold; and

qualifying, if the signal is detected, to determine whether the detected signal is a wanted signal or an unwanted signal.

2. (Original)   The method according to claim 1, wherein the establishing the first and the second thresholds includes establishing the first and the second thresholds using a saw tooth process.

3. (Original)   The method according to claim 1, further comprising adding a delay to the signal after the signal is detected, and wherein a detection bandwidth associated with the monitoring is less than a group delay associated with the signal.

4. (Original)   The method according to claim 3, wherein the delay is less than a timeout parameter associated with the protocol.

5. (Original)   The method according to claim 1, further comprising refining the first threshold and the second threshold if no signal is detected.

6. (Original)   The method according to claim 1, wherein the first detection mode includes an analog detection mode.

7. (Original)   The method according to claim 1, further comprising recording information associated with the detected signal in an event log if the detected signal is determined to be the unwanted signal.

8. (Original)   The method according to claim 7, further comprising disabling a transmission of the signal if the detected signal is determined to be the unwanted signal.

9. (Original)   The method according to claim 7, further comprising refining the first and the second threshold using the recorded information

10. (Original) The method according to claim 1, further comprising monitoring the first and second frequency channels to detect a signal thereon in accordance with a second detection mode including the first threshold and the second threshold when the detected signal is detected.

11. (Original) The method according to claim 10, wherein the second detection mode includes a digital detection mode.

12. (Original) The method according to claim 1, further comprising overriding the first detection mode with a second detection mode.

13. (Original) The method according to claim 1, wherein the qualifying includes:

starting a timer to measure an elapsed time associated with the detected signal if the detected signal is determined to be the wanted signal; and

enabling a transmission of the detected signal in accordance with an override mode.

14. (Original) The method according to claim 13, wherein the starting the timer includes:

determining if the elapsed time is greater than a minimum value; and

refining a first criteria if the elapsed time is greater than the minimum value and a second criteria if the elapsed time is not greater than the minimum value.

15. (Original) The method according to claim 14, wherein the minimum value includes a minimum packet duration.

16. (Original) The method according to claim 14, wherein the first criteria includes an end of packet criteria and the second criteria includes an unwanted signal criteria.

17. (Original) The method according to claim 13, wherein the starting the timer includes:

determining if the elapsed time is greater than a maximum value; and

refining a criteria if the elapsed time is not greater than the maximum value and disabling the transmission if the elapsed time is greater than the minimum value.

18. (Original) An apparatus for detecting the presence of a signal on one of at least two

frequency channels in a frequency translating repeater for use in wireless local area network

(WLAN) operating according to a protocol, the apparatus comprising:

a radio frequency interface;

a processor; and

a memory coupled to the processor and the radio frequency interface, the memory

containing instructions for causing the processor to:

establish a first threshold associated with a first of the at least two frequency

channels and a second threshold associated with a second of the at least two frequency

channels;

monitor the first and second frequency channels to detect the signal thereon in

accordance with a first detection mode including the first threshold and the second

threshold; and

qualify, if the signal is detected, to determine whether the detected signal is a

wanted signal or an unwanted signal.

19. (Original) The apparatus according to claim 18, wherein the instructions further cause the

processor, in establishing the first and the second thresholds, to establish the first and the second

thresholds using a saw tooth process.

20. (Original) The apparatus according to claim 18, wherein the instructions further cause the

processor to add a delay to the signal after the signal is detected, and wherein a detection

bandwidth associated with the monitoring is less than a group delay associated with the signal.

21. (Original) The apparatus according to claim 20, wherein the delay is less than a timeout parameter associated with the protocol.

22. (Original) The apparatus according to claim 18, wherein the instructions further cause the processor to refine the first threshold and the second threshold if no signal is detected.

23. (Original) The apparatus according to claim 18, wherein the first detection mode includes an analog detection mode, not involving the processor directly.

24. (Original) The apparatus according to claim 18, wherein the instructions further cause the processor to record information associated with the detected signal in an event log if the detected signal is determined to be the unwanted signal.

25. (Original) The apparatus according to claim 24, wherein the instructions further cause the processor to disable a transmission of the signal over the radio frequency interface if the detected signal is determined to be the unwanted signal.

26. (Original) The apparatus according to claim 24, wherein the instructions further cause the processor to refine the first and the second threshold using the recorded information

27. (Original) The apparatus according to claim 18, wherein the instructions further cause the processor to monitor the first and second frequency channels to detect a signal thereon in accordance with a second detection mode including the first threshold and the second threshold when the detected signal is detected.

28. (Original) The apparatus according to claim 27, wherein the second detection mode includes a digital detection mode.

29. (Original) The apparatus according to claim 18, wherein the instructions further cause the processor to override the first detection mode with a second detection mode.

30. (Original) The apparatus according to claim 18, wherein the qualifying includes:

starting a timer to measure an elapsed time associated with the detected signal if the detected signal is determined to be the wanted signal; and

enabling a transmission of the detected signal in accordance with an override mode.

31. (Original) The apparatus according to claim 30, wherein the instructions in causing the processor to start the timer further cause the processor to:

determine if the elapsed time is greater than a minimum value; and

refine a first criteria if the elapsed time is greater than the minimum value and a second criteria if the elapsed time is not greater than the minimum value.

32. (Original) The apparatus according to claim 31, wherein the minimum value includes a minimum packet duration.

33. (Original) The apparatus according to claim 31, wherein the first criteria includes an end of packet criteria and the second criteria includes an unwanted signal criteria.

7

34. (Original) The apparatus according to claim 30, wherein the instructions in causing the

processor to start the timer further cause the processor to:

determine if the elapsed time is greater than a maximum value; and

refine a criteria if the elapsed time is not greater than the maximum value and disabling

the transmission if the elapsed time is greater than the minimum value.

35. (Original) The apparatus according to claim 18, further comprising an IF unit, capable of

down-converting the signal on an RF band and selecting one of the first and the second frequency

channels for transmission.

36. (Original) The apparatus according to claim 35, wherein the IF unit is configured to filter the

down converted signal.

37. (Original) The apparatus according to claim 35, wherein the IF unit is configured to add a

delay to the down converted signal during a period the signal is not detected and prior to enabling

a transmission.

38. (Original) The apparatus according to claim 18, further comprising a detection unit

associated with each of the at least two frequency channels.

39. (Original) The apparatus according to claim 38, wherein the detection unit includes at least

one of: a diode detector at an intermediate frequency (IF), a diode detector at a base band

frequency, a matched filter at the IF, a matched filter at a radio frequency (RF).

40. (Original) The apparatus according to claim 38, further comprising a converter to digitize the signal to form a digitized signal and wherein the detector unit is further configured to detect the digitized signal.

41. (Original) The apparatus according to claim 38, wherein the detection unit is further configured to:

compare a power level associated with the signal;

monitor the signal over a time interval to determine a noise estimate; and

comparing the current signal power to this estimate as part of the detection process.

42. (Original) The apparatus according to claim 18, wherein the instructions in causing the processor to qualify, further cause the processor to:

monitor the signal for a first period of time when the signal is above one of the first and the second thresholds; and

integrate the signal for a second period of time prior to comparing the signal to the first and the second thresholds.

43. (Original) The apparatus according to claim 42, further comprising a converter for converting the signal to form a digitized signal, and wherein the instructions in causing the processor to monitor and integrate, further cause the processor to monitor the digitized signal and integrate the digitized signal.

44. (Original) The apparatus according to claim 42, further comprising a converter for converting the signal to form a digitized signal, and wherein the instructions in causing the

processor to monitor and integrate, further cause the processor to monitor the signal and the

digitized signal and integrate the signal and the digitized signal.

45. (Original) The apparatus according to claim 37, further comprising a surface acoustic wave

(SAW) filter and wherein the delay is added using the SAW filter.

46. (Original) The apparatus according to claim 41, wherein the detection unit is further

configured to monitor the noise level of both of the at least two frequency channels at the same

time.

47. (Original) The apparatus according to claim 41, further comprising a converter, and wherein

the detection unit is further configured to monitor the noise level by under-sampling the

converter.

48. (Previously Presented)   A computer-readable medium comprising instructions, which,

when executed by a machine, cause the machine to perform operations for detecting the presence

of a signal on one of at least two frequency channels in a frequency translating repeater for use in

wireless local area network (WLAN) operating according to a protocol, the instructions

comprising:

instructions to establish a first threshold associated with a first of the at least two

frequency channels and a second threshold associated with a second of the at least two frequency

channels;

instructions to monitor the first and second frequency channels to detect the signal

thereon in accordance with a first detection mode including the first threshold and the second

threshold; and

instructions to qualify, if the signal is detected, to determine whether the detected signal

is a wanted signal or an unwanted signal.

49. (Previously Presented)   The computer-readable medium according to claim 48, wherein the

instructions to qualify includes:

instructions to start a timer to measure an elapsed time associated with the detected signal

if the detected signal is determined to be the wanted signal; and

instructions to enable a transmission of the detected signal in accordance with an override

mode.

50. (Previously Presented)   The computer-readable medium according to claim 49, wherein the

instructions further include:

instructions to determine if the elapsed time is greater than a minimum value; and

instructions to refine a first criteria if the elapsed time is greater than the minimum value

and a second criteria if the elapsed time is not greater than the minimum value.

51. (Previously Presented)   The computer-readable medium according to claim 50, wherein the

minimum value includes a minimum packet duration.

52. (Previously Presented)   The computer-readable medium according to claim 50, wherein the

first criteria includes an end of packet criteria and the second criteria includes an unwanted signal

criteria.

53. (Previously Presented)   The computer-readable medium according to claim 49, wherein the

instructions further include:

instructions to determine if the elapsed time is greater than a maximum value; and

instructions to refine a criteria if the elapsed time is not greater than the maximum value

and disabling the transmission if the elapsed time is greater than the minimum value.

54. (Previously Presented)   The computer-readable medium according to claim 48, wherein the

instructions further include:

instructions to monitor the signal for a first period of time when the signal is above one of

the first and the second thresholds; and

instructions to integrate the signal for a second period of time prior to comparing the

signal to the first and the second thresholds.

55. (Previously Presented)   The computer-readable medium according to claim 54, further

including:

instructions to convert the signal to form a digitized signal, and wherein the instructions

to monitor and integrate, further include instructions to monitor the digitized signal and integrate

the digitized signal.

56. (Previously Presented)   The computer-readable medium according to claim 54, further including:

instructions to convert the signal to form a digitized signal, and wherein the instructions to monitor and integrate, further include instructions to monitor the signal and the digitized signal and integrate the signal and the digitized signal.

57. (Previously Presented)   An apparatus for detecting the presence of a signal on one of at least two frequency channels in a frequency translating repeater for use in wireless local area network (WLAN) operating according to a protocol, the apparatus comprising:

means for establishing a first threshold associated with a first of the at least two frequency channels and a second threshold associated with a second of the at least two frequency channels;

means for monitoring the first and second frequency channels to detect the signal thereon in accordance with a first detection mode including the first threshold and the second threshold; and

means for qualifying, if the signal is detected, to determine whether the detected signal is a wanted signal or an unwanted signal.

58. (Previously Presented)   The apparatus according to claim 57, wherein the means for qualifying comprises:

means for starting a timer to measure an elapsed time associated with the detected signal if the detected signal is determined to be the wanted signal; and

means for enabling a transmission of the detected signal in accordance with an override mode.

59. (Previously Presented)   The apparatus according to claim 58, further comprising:

    means for determining if the elapsed time is greater than a minimum value; and

    means for refining a first criteria if the elapsed time is greater than the minimum value

and a second criteria if the elapsed time is not greater than the minimum value.

60. (Previously Presented)   The apparatus according to claim 59, wherein the minimum value

includes a minimum packet duration.

61. (Previously Presented)   The apparatus medium according to claim 59, wherein the first

criteria includes an end of packet criteria and the second criteria includes an unwanted signal

criteria.

62. (Previously Presented)   The apparatus according to claim 58, wherein the instructions

further include:

    means for determining if the elapsed time is greater than a maximum value; and

    means for refining a criteria if the elapsed time is not greater than the maximum value

and for disabling the transmission if the elapsed time is greater than the minimum value.

63. (Previously Presented)   The apparatus according to claim 57, wherein the instructions

further include:

    means for monitoring the signal for a first period of time when the signal is above one of

the first and the second thresholds; and

    means for integrating the signal for a second period of time prior to comparing the signal

to the first and the second thresholds.

64. (Previously Presented)   The apparatus according to claim 63, further including:

means for converting the signal to form a digitized signal, and

wherein the means for monitoring and integrating, further include means for monitoring

the digitized signal and for integrating the digitized signal.

65. (Previously Presented)   The apparatus according to claim 63, further including:

means for converting the signal to form a digitized signal, and

wherein means for monitoring and for integrating, further include means for monitoring

the signal and the digitized signal and means for integrate the signal and the digitized signal.

66. (New)   The method according to claim 1, wherein each threshold is established based

upon a probability of a false detection of the signal.